REMARKS

Claims 1-10 are pending in the instant application. Claim 10 was previously withdrawn. No claims are currently amended, added, or cancelled. As set forth in prior Responses, the Applicants maintain the traversal of the restriction requirement for purposes of preserving the right to petition the Examiner's decision until after final action on or allowance of claims to the invention elected.

Claims 1-9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Miyajima et al. (U.S. Pre-Grant Pub. No. 2002/0015748) in view of Lee et al. (European Patent Pub. No. 0997498). The Applicants respectfully continue to the traverse the rejection of claims 1-9 under 35 U.S.C. §103(a) over Miyajima et al. in view of Lee et al. on the basis that the Examiner has failed to properly establish that every element of independent claim 1 is taught by the combination of Miyajima et al. and Lee et al., and that the Examiner has failed to properly establish obviousness through optimization of a known result-effective variable such that one of skill in the art would **not reasonably have been expected** to practice the invention claimed in independent claim 1 based upon the combined teachings of Miyajima et al. and Lee et al.

As to the Examiner's Mischaracterization of the Applicants Response Dated June 16, 2011, with Regards to the Rejections of Claims 1-9 Under 35 U.S.C. §103(a) Relying Upon Principles of Obvious Optimization of a Known Result-Effective Variable

As a preliminary matter, the Applicants respectfully submit that the Examiner has failed to review the entirety of the Response dated June 16, 2011, and more significantly the

Examiner has completely mischaracterized the Applicants' statements made therein. More specifically, on Pages 6 and 7 of the instant Office Action, the Examiner contests that:

> "Applicant points to Table 1 as a showing of these unexpected results and states 'the combination of viscosity of the curable silicone composition, time to achieve a torque of 1 kgf*cm during curing, and time to achieve a torque of 5kgf*cm during curing affect the formation of voids, fillability, and warping of the semiconductor…' Though Applicant makes theses statements, there is no correlation or date in Table 1 of how the above mentioned properties affect the 'formation of voids, fillability, and warping of the semiconductor.' Therefore, Table 1 and the statements made by Applicant are not sufficient to show unexpected results."

Notably, the Applicants never directly linked Table 1 to unexpected results. Instead, the Applicants cited to Table 1 as evidence of the fact that "[t]he **very same silicone composition** can exhibit different periods of time for which torque grows from 1 kgf•cm to 5 kgf•cm depending upon the processing parameters (see curable liquid silicone rubber compositions (A)-(D) in Table 1 on page 15 of the original application as filed, in which different times to the specified torques are achieved based upon different curing temperatures for the very same compositions)." (see page 6 of the Response dated June 16, 2011). In the sentences following the statement of fact above, the Applicants clearly detail that since the very same silicone composition can exhibit different periods of time for which torque grows, the instant case pertains to discovery of previously unidentified curing parameters of a curable liquid silicone composition that, when employed in a method of sealing a semiconductor device, produce unexpected results relative to sealing the semiconductor device.

These unexpected results relate to the formation of voids (appearance), fillability, and warping of the semiconductor that is encapsulated with the cured silicone composition. To this

end, the Applicants **specifically directed the Examiner's attention to Table 2** on page 17 of the original application as evidence of significant unexpected results (**see page 10 and 11 of the Response dated June 16, 2011**). As is self evident, Table 2 specifically describes characteristics of appearance, fillability, and warping of the Practical and Comparative Examples prepared using the curable liquid silicone rubber compositions (A)-(D) as provided in Table 1. As the Examiner should be aware, and as set forth in MPEP 2145, "Office personnel should consider all rebuttal arguments and evidence presented by applicants. See, e.g., *Soni*, 54 F.3d at 750, 34 USPQ2d at 1687 (error not to consider evidence presented in the specification)." (emphasis added).

In view of the Examiner's oversight as described above, the Applicants again take the position that the combined teachings of Miyajima et al. and Lee et al. fail to teach a method, as claimed, wherein a time interval from the moment directly after measurement of a torque of the curable liquid silicone composition at the molding temperature to the moment when the torque reaches 1 kgf*cm is not less than 1 min., while the time interval during which the torque grows from 1 kgf*cm to 5 kgf*cm is not more than 1 min. Accordingly, for the sake of brevity and now considering that the Applicants are again drawing the Examiner's attention to **Table 2**, the Applicants respectfully direct the Examiner's attention to the Response dated June 16, 2011, and all remarks made therein, particularly in view of the clarifying comments made instantly above.

As to the Rejections of Claims 1-9 Under 35 U.S.C. §103(a) Relying on Inherent Disclosure

The Examiner appears to have once again returned to a previously presented ground of rejection relying on inherent disclosure. More specifically, on Page 4 of the instant Office Action the Examiner concludes that "[t]he prior art invention, as shown above, involves the same method for manufacturing a semiconductor device and same silicone viscosity as that of the prior art [*sic*] invention. Thus, the prior art invention would be reasonably expected to have the same properties as those of the claimed invention." In view of the Examiner's alternating grounds for rejection, the Applicants respectfully remind the Examiner that as set forth in MPEP 707.07(g), "Piecemeal Examination" is to be avoided and that each claim should be rejected on all valid grounds available.

Notably, the Applicants previously addressed and overcame the rejection of claims 1-9 under 35 U.S.C. §103(a) over Miyajima et al. in View of Lee et al. that relied upon the principles of inherency in the Response dated January 18, 2011. Accordingly, the Applicants respectfully direct the Examiner's attention at this time to the Response dated January 18, 2011, and all remarks made therein, only a portion of these remarks are presently revisited below for the sake of brevity.

Stated simply, the Applicants respectfully submit that the Examiner has failed to establish a *prima facie* showing of inherency that is sufficient to shift the burden to the Applicants to show that the prior art does not inherently possess the features claimed in independent claim 1. Further, the Applicants respectfully submit that inherency of the instant claims cannot be established in view of the recent precedential decision by the Board of Appeals in *In re Whalen*, Appeal 2007-4423, which is a *binding* decision.

As the Examiner is likely aware, the possibility that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. See MPEP 2112(IV.) citing *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993), and that "[t]o establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, **may not be established by probabilities or possibilities**. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " See MPEP 2112(IV.) citing *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. " See MPEP 2112(IV.) citing *Ex parte Levy,* 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).

The outcome of *In re Whalen* is very relevant to the instant case, as are the general standards for establishing inherency that require a feature to be "necessarily present" in the prior art to amount to inherent disclosure. Notably, Lee et al. provides a wide range of curing temperatures for the composition disclosed therein, ranging from 70 to 200°C. As noted above, the **very same silicone composition** can exhibit different periods of time to achieve the specified torques depending upon the processing parameters. Indeed, curing composition (A) at 70°C results in a time for which torque grows from 1 kgf•cm to 5 kgf•cm that is too long, whereas curing composition (A) at 120°C results in a time for which torque grows from 1

kgf•cm to 5 kgf•cm that is within the claimed range (while time for which torque grows to 1 kgf•cm also meets the requirements of the instant claims). Similarly, with regard to compositions (C) and (D) (which have relatively high viscosities of 140 and 93 mPa*s), curing at 120°C results in time for which torque grows to 1 kgf•cm that is too short, with void formation occurring in the cured silicone composition. As such, because the very same silicone composition can exhibit different periods of time to achieve the specified torques, the Applicants respectfully submit that identification of an apparently similar composition in the prior art is insufficient to carry the burden of proving that the claimed times to achieve the specified torques is inherent within the teachings of the prior art.

Furthermore, because Lee et al. teaches a very broad range of curing temperatures of from 70°C-200°C, and Applicants have provided examples in which it is shown that curing temperatures at 70°C **do not necessarily result** in time grow from 1 to 5 kgf*cm of less than 1 minute (see Compositions (A)-(D) in Table 1), the Applicants respectfully submit that the mere disclosure in the prior art of an overlapping range of curing temperatures is also insufficient to carry the burden of proving that the claimed times to achieve the specified torques are inherent within the prior art. The fact of the matter is that the prior art has failed to recognize the significance of the instantly claimed times to achieve the specified torques as those times relate to the features of the cured silicone composition and interaction of the cured silicone composition with an encapsulated semiconductor wafer (as manifested through measurements of warping).

In view of the outcome of *In re Whalen*, the Applicants respectfully submit that even if some of the compositions of Lee et al. could possibly be processed by curing at some temperature within the broad range disclosed in Lee et al. to achieve the claimed times to achieve the specified torques, such possibility is **not** sufficient to establish inherency of the instant claimed times to achieve the specified torques because the Examples and Comparative Examples contained in the instant application clearly show that the times to achieve the torques vary for the same composition, and different compositions exhibit different times to achieve the specified torques even when cured at a common temperature (see the differences in times to achieve torques at both 70°C and 120°C across Compositions (A)-(D)). As such, because Lee et al. (and the prior art in general) does not recognize the parameter of time to achieve the specified torques, and also clearly does not specify compositions, curing temperatures, and viscosities that would **necessarily result** in the specified times to achieve the specified torques, the Applicants respectfully submit that the Examiner cannot properly establish that the instantly claimed times to achieve the specified torques are inherent within the teachings of Lee et al.

In view of the foregoing, the Applicants respectfully submit that the Examiner has failed to properly establish obviousness of independent claim 1 over Miyajima et al. in view of Lee et al. due to the failure to properly account for a teaching of the instantly claimed times to grow torque of the silicone composition from 1 kgf•cm to 5 kgf•cm in the prior art, and due to lack of recognition in the art that the time interval for a silicone composition to go from one torque to another torque is a result-effective variable. Additionally, the Applicants respectfully submit that, even assuming that the Examiner has adequately shown that the

curable silicone composition utilized in the method of claim 1 *seems* to be similar to the curable silicone compositions of Lee et al., such a showing is completely insufficient to establish *prima facie* obviousness because there is no basis to find that the curing parameters (i.e., the claimed times to achieve the specified torques), as claimed, are inherently taught in Lee et al. or in the prior art in general. The curing parameters clearly relate to processing considerations in addition to features of the composition itself. The Examiner has failed to make a showing that the claimed curing parameters are inherently taught in Lee et al. or in the prior art in general.

As such, the Applicants respectfully submit that the rejection of claims 1-9 under 35 U.S.C. §103(a) over Miyajima et al. in view of Lee et al. is overcome and must be withdrawn. The Applicants further submit that the claimed combination of viscosity of the silicone composition and specified time to grow torques from 1 kgf•cm to 5 kgf•cm provide significant unexpected results **as illustrated in Table 2 on page 17 of the original application**.

The Applicants respectfully submit that independent claims 1-9 are in condition for allowance, which allowance is respectfully requested. This Response is being filed with the appropriate fee for a one-month extension of time and it is believed that no further fees are presently due. However, the Commissioner is hereby authorized to charge any additional fees or credit any overpayments to the undersigned's deposit account 08-2789.

Respectfully submitted,

HOWARD & HOWARD ATTORNEYS, PLLC

Date: December 12, 2011

/David M. LaPrairie/
David M. LaPrairie, Registration No. 46,295
450 West Fourth Street
Royal Oak, MI 48067
(248) 723-0442